Primary Aluminum Reduction Plant
Columbia Falls, Montana

ARCO Metals Company

Columbia Falls Aluminum Reduction Facility
Atlantic Richfield Company
ARCO Metals Division
Offering Memorandum
Confidential

This Offering Memorandum has been prepared by ARCO Metals Company, a division of Atlantic Richfield Company (ARCO), and is being delivered to a limited number of parties who it is believed may be interested in acquiring ARCO's aluminum reduction facility at Columbia Falls, Montana. The sole purpose of this Offering Memorandum is to assist the recipient in deciding whether it wishes to proceed with a further investigation of the Columbia Falls facility according to the procedures outlined herein. It should be noted that the financial information herein regarding the facility is unaudited. While ARCO believes that such financial information and the other information contained herein is accurate, it expressly disclaims any and all liability for representations or warranties, expressed or implied, contained in, or for omissions from, this Offering Memorandum or any other written or oral communication transmitted or made available to a prospective purchaser. *Only those particular representations and warranties which may be made to the purchaser in the purchase agreement when, as and if it is finally executed, and subject to such limitations and restrictions as may be specified in the purchase agreement, shall have any legal effect.*

By its acceptance hereof, the recipient agrees to keep confidential for a period of five years all information contained herein or made available in connection with any further investigation of the Columbia Falls facility. This Offering Memorandum shall not be copied, reproduced or distributed to others at any time without the prior consent of ARCO. It has been delivered to prospective purchasers for information purposes set forth above. Upon request, the recipient will promptly return all material received from ARCO (including this Offering Memorandum) without retaining any copies thereof. In furnishing this Offering Memorandum, ARCO undertakes no obligation to provide the recipient with access to any additional information.

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Introduction

Overview of the Business

The Columbia Falls, Montana aluminum reduction plant is a Vertical Stud Soderberg (VSS) smelter that has been modified with Sumitomo technology. The plant is located in northwestern Montana, 255 miles east of Spokane, Washington and 62 miles south of Canada. Construction of the first two potlines began in 1952, and production began in 1955. The third potline was added in 1965, and the final two potlines were added in 1968. Rated production capacity is 360 million pounds of primary aluminum per year.

The Columbia Falls plant site consists of more than 3,900 acres of fee owned land and more than 2 million square feet of covered floor space. Six hundred aluminum reduction cells in five potlines provide metal to a cast house with ten furnaces, five casting pits, and one pig casting machine. A rod mill facility is also on site. Industrial firm power is purchased from the Bonneville Power Administration pursuant to a 20-year contract. Alumina is converted to primary aluminum and is sold in ingot form for remelt, sheet, and foundries. The plant employs over 1,000 people and is virtually self-sufficient for maintenance and engineering requirements.

Major features of the plant include:

- state-of-the-art VSS technology,
- stable and experienced work force,
- excellent automation and information systems,
- state-of-the-art environmental control, and
- ability to produce 99.7 percent aluminum in over 80 percent of the pots versus the industry average of 70 percent for similar VSS or Horizontal Stud Soderberg Technology.

A major maintenance and upgrading program was completed in 1981. Approximately $37 million was spent to implement Sumitomo technology and about $32 million has been spent since 1979 for significant equipment upgrading and Research and Development projects. Required capital spending is estimated to average less than $4 million per year over the next five years.

The Columbia Falls plant has been implementing significant performance improvements in a number of areas, i.e.:

- cell aluminum feeding/polarization computation methods,
- improved diagnostics/counter-electromotive force,
- bath ratio/x-ray analysis, and
- integrated process control and data base computer systems.

A Technology Improvement Program (TIP) has been underway. Many developmental projects are being tested on operating cells to significantly improve production performance and metal purity at reduced operating costs. Cost containment is planned via improved labor costs, increased finished goods production, and an employee involvement program. There is reason to expect that future power rate increases will be more moderate.

Highlights of the Columbia Falls Plant

State-of-the-Art Vertical Stud Soderberg Operation

The plant has been fully operational with Sumitomo technology (state-of-the-art for Vertical Stud Soderberg operation) since early 1981. It has resulted in steadily improving operating efficiency and the most efficient dry anode operation outside of Japan. The plant is in full compliance with all state and federal environmental standards.

Stable, Experienced Work Force

No significant work stoppages have ever occurred due to labor/management negotiations. The plant management and the union leadership have had 29 years of successful and open relations, and the cooperative labor environment results in less restrictive work rules. The absenteeism rate and the turnover rate may be the lowest in the industry. The plant also benefits from the experienced and qualified managerial and professional staff.

Automation and Information Systems

The plant has advanced computing and systems support, consisting of analytical laboratory computers, power and cell control computers, and a mainframe data processing computer. The various systems can run independently, yet are fully integrated allowing the transfer of operational/ analytical data to the mainframe data base for performance analysis and process control.

Internal Developmental and Demonstration Projects

Many developmental tests are being conducted on operating cells that are leading to significantly improved production performance and metal purity at reduced operating costs. These results are being accomplished by Columbia Falls' technical staff. A brief description of these projects is found under the *Technology* section.

Environmental Control/Industrial Hygiene

The plant historically has been well recognized for its environmental and industrial hygiene monitoring and for its lab developmental work. The plant is in full compliance with all applicable environmental laws and regulations concerning air, water, solid waste, and PCBs. The Industrial Hygiene Department has a complete program for health protection of the work force, in compliance with governmental regulations. It has total analytical capability in this area and is certified by the American Industrial Hygiene Association.

Capital Improvements

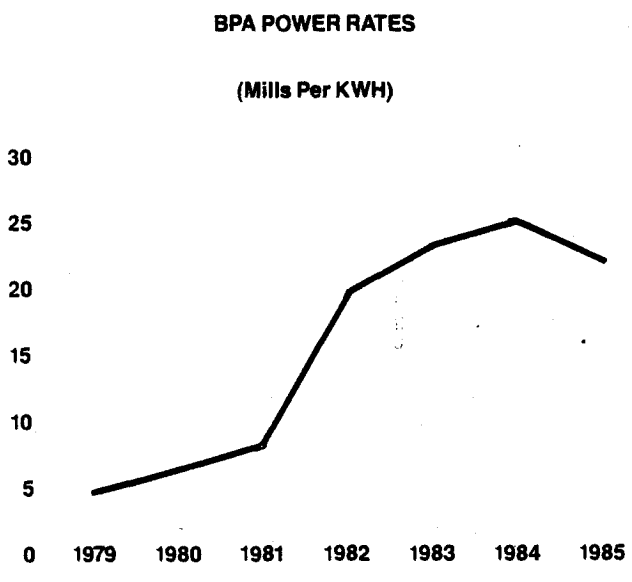
In addition to $37 million spent for the implementation of Sumitomo technology, $32 million was spent from 1979 to 1983 for significant equipment upgrade and research and development projects. Required capital spending is estimated to average less than $4 million per year over the next five years.

Other

The plant has one of the lowest total energy costs per pound of metal among aluminum producers in the U.S. Pacific Northwest, and its Australian-sourced alumina contracts have been cost competitive. The plant is virtually self-sufficient for all engineering and maintenance requirements. Products include "T" ingot, pig, sheet ingot, and foundry ingots.

Business Opportunity
A key factor for success at Columbia Falls is cost control. Production costs (excluding alumina, depreciation, and interest) are expected to increase from 47½ cents per pound in 1985 to 55 cents per pound in 1989, an average increase of only 3.7 percent per year. This cost containment is possible because of several factors.

Slower Growth of Power Costs
- BPA power rates which had increased substantially from 1979 to 1984 are predicted to decrease in 1985 to an average realized rate of 22-24 mills per KWH. Future rate increases are anticipated to be moderate.



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Increased Productivity
- Technology improvement programs are expected to reduce the use of energy, labor, and materials.
- Plant employment is decreasing as capital improvement programs are being completed and as employment efficiencies are being implemented.
- An employee involvement program is in place to increase morale and productivity.
- Recent estimates show power consumption in ACKWH/POUND decreasing from 8.3 in 1985 to 7.5 in 1989. Natural gas consumption is estimated to decrease from 322 MCF in 1985 to 262 MCF by 1986. Manhours per ton is estimated to decrease from 8.4 in 1985 to 7.0 in 1989.

Improved Labor Costs
- The average industry wage and benefit rate is about $25.60 per hour, (USW). Columbia Falls' rate is about $21.20 per hour.
- Due to the excellent labor environment, it is expected that labor cost escalation will be less than average for the industry.

Increased Production
- The plant is expected to be able to increase its finished goods production over the next five years. This will result in decreased fixed costs per pound.

Competitive Position
- With achieved planned cost improvements, Columbia Falls should move below average INDUSTRY production costs.

Summary
Columbia Fall's profitability and cash flow are projected to improve significantly as:
- industry economics come back into balance,
- power rate increases become more moderate and flexible,
- cost improvement programs become operational, and
- benefits of past capital spending are realized.

The outlook for ROI is encouraging, especially considering the limited capital spending required.

Procedures of Sale

Atlantic Richfield company is conducting the divestiture of Columbia Falls through the management of ARCO Metals. All requests for further information should be made to:

Brack W. Duker
V.P.—Special Asset Transactions
Atlantic Richfield Company
515 S. Flower Street
Los Angeles, CA 90071
213/486-1704

Please do not contact the personnel at Columbia Falls unless specifically authorized to do so by Mr. Duker.

ARCO will give those prospective purchasers it believes to be qualified and seriously interested an opportunity to inspect Columbia Falls' facilities and discuss operations with members of senior management.

This document has been provided to a limited number of prospective purchasers. ARCO's initial objective is to ascertain which parties have a serious interest and to enter into in-depth discussions regarding the sale of Columbia Falls on a timely basis.

Description of the Business

Introduction

The Aluminum Business
The Western world has capacity to produce 31.8 billion pounds of primary aluminum per year. Last year, 7.4 billion pounds were produced in the U.S., and another 16.5 billion pounds were produced outside the U.S.

Primary aluminum is used as ingot for castings and is further fabricated into other aluminum products such as plate, sheet, foil, extrusions, rod/bar/wire, forgings/impacts, and powder/paste.

Aluminum's major markets include containers/ packaging, building/construction, and transportation. Other markets include consumer durables, machinery/equipment, and electrical.

Manufacturing Process and Raw Materials
Facilities exist to unload and store raw materials, process anode paste, and disassemble and rebuild spent reduction cells, smelt and cast molten aluminum, and load and ship products.

Alumina, the basic raw material from which aluminum is produced, is refined from bauxite. Columbia Falls' alumina, supplied through long-term contracts, originates in Australia. There bauxite is taken by open-pit mining, refined into sandy alumina by the Bayer process, and loaded onto ships at ports in the Kwinana/Bunbury Western Australia range. Ownership is transferred to ARCO upon delivery, F.O.B. vessel.

ARCO transports the alumina by ocean freight to Everett, Washington, where it is unloaded by clam shell bucket. Port of Everett storage capacity is 55,000 short tons. Alumina is transported by Burlington Northern from Everett to Columbia Falls in bottom-dump gondola railroad cars, where it is unloaded into bucket elevators and transferred to storage silos. These silos have a storage capacity of 59,000 short tons. Supplemental storage of 35,000 short tons is also available at Columbia Falls.

Petroleum coke and coal tar pitch are the principal raw materials used in the in-house manufacture of carbon paste briquettes. These briquettes are used to replenish the sacrificial anode consumed during the electrolytic reduction process. The plant has facilities to: unload and store anode-related raw materials; crush, separate and classify petroleum coke; weigh and mix anode paste; and extrude and store anode briquettes.

The steel cathode shell of a reduction cell is lined by insulation materials and carbon block assemblies. During the rebuilding process, the insulation material and carbon block assemblies, supplied by outside vendors, are replaced and the cathode interior lined and sealed with cathode carbon paste. The Columbia Falls plant has facilities to unload and store cathode-related raw materials, crush and separate anthracite coals, and weigh and mix cathode carbon paste. There is also a complete group of ancillary facilities associated with the pot rebuild process.

Aluminum fluoride and cryolite are the principal chemicals composing the electrolyte in the reduction cell. Alumina is dissolved in the electrolyte. The anode is immersed in the electrolyte and through electrolysis, the alumina is separated into its respective elements: aluminum and oxygen.

The reduction cells (pots) are the focal point in the primary production process. At Columbia Falls, there are 600 Vertical Stud Soderberg cells equally distributed among ten potrooms; two potrooms equal one potline. All bulk storage raw materials are transferred to the cells by specially designed vehicles. Dispensing these materials is done by operator control as the vehicles travel parallel to the pot on either the front or back side. Cell operations are normally controlled by a process computer, but may be individually placed on manual control when necessary.

The electricity used in the reduction process is principally generated from the many dams on the Columbia River and its tributaries. Alternating current supplied by the Bonneville Power Administration is converted to direct current by solid state rectifiers. The direct current flows from the anode to the cathode and serves to provide a source of heat to the reduction cell and serves as the direct stimulus to the electrolytic process.

Each reduction cell produces approximately 1,620 pounds of aluminum per day; pots are tapped every other day by the siphon principle, and molten metal is transferred by crucible and fork truck to a centrally located casting department. Most alloying is done in the holding and casting furnaces based on feedback from the quantometer in an in-house chemical laboratory. Casting the various sized and shaped ingots is based on the direct chill principle. Columbia Falls casting facilities include ten furnaces, five casting pits, and one pig casting machine.

Shipments of primary products are made principally on the Burlington Northern Railroad. The Columbia Falls plant operates and maintains its own switch engine; railcars are weighed both in and out.

The operating, maintenance, and service departments include a full service machine shop and a variety of vehicular, power-driven equipment necessary for an aluminum plant of Columbia Falls' design and location.

Product Lines

- T Ingot
- Pig
- Sheet Ingot
- Foundry Ingot

Shipments
(1983 in Millions of Pounds)

	U.S. Customers	Export	Internal	Total
T, Pig & RSI	11	0	0	11
Sheet	0	0	132	132
Foundry	1	0	0	1

Shipments
(1984 in Millions of Pounds, Estimated)

	U.S. Customers	Export	Internal	Total
T, Pig & RSI	28	0	2	30
Sheet	0	0	249	249
Foundry	12	0	0	12

Product Descriptions

T Ingot and Pig—Basic, unalloyed shapes which are at least 99.5 percent pure aluminum. RSI is Recycled Scrap Ingot.

Sheet Ingot—Alloyed and shipped to mills where it is hot and cold rolled into plate, sheet, and foil products.

Foundry Ingot—Alloyed to specification for shipment to foundries for remelting to produce castings.

Suppliers

Alumina—Supplied under two contracts with Alumax, Inc. The alumina originates from refineries owned by Alcoa of Australia in Western Australia. The first contract is for 200,000 metric tons per year from January 1, 1975 to December 31, 1990. The second contract provides 127,000 metric tons per year from July 1, 1978 to June 30, 1988.

Electricity—Supplied by the Bonneville Power Administration (BPA) under a contract that will expire July 1, 2001.

Natural gas--Supplied under contract with Montana Power Company.

Petroleum coke, coal tar pitch, aluminum fluoride, and synthetic cryolite—Are other important raw materials. These are purchased in amounts as required from various producers at market prices.

Customers

Most of Columbia Falls' production has been supplied to ARCO Aluminum's Terre Haute, Indiana rolling mill. Internal vs. external sales for the last five years were as follows:

Year	ARCO Aluminum	Outside Customers
1979	87%	13%
1980	76%	24%
1981	94%	6%
1982	64%	36%
1983	92%	8%

Outside sales are made on a direct basis to consumers and metal merchants. There are four regional sales areas: Midwest, Central, Northeast/ Southeast, and West/Southwest.

Technology

Quality Control

The Columbia Falls plant has an intensive quality control program that is reflected in the plant's significant activities. A particularly strong effort exists in the cell operations area, the cell rebuild area, and the carbon plant.

Recent Technology Improvements

The Columbia Falls plant has developed and implemented significant performance improvements in the following areas:

- **Cell Alumina Feeding/Polarization Computation Methods**
  This practical method of cell feeding by computing a real state of cell polarization will improve current and energy efficiency.
- **Improved Diagnostics/Counter-Electromotive Force (EMF)**
  Mathematical methods for cell emf have resulted in an indication of the cell's general condition. This new tool is in-place in two potlines and will result in improved current and energy efficiency.
- **Bath Ratio X-Ray Analysis**
  This new X-ray method measures bath ratio more accurately and is relatively immune to sample contamination. It has been applied successfully at the Columbia Falls plant for two years. No other plant is known to possess this method. The major benefit will be better cell control, which will improve current and energy efficiency.
- **Integrated Process Control and Data Base Computer System**
  A sophisticated system has been developed to utilize the computer to integrate multiple control systems into a common data base. This will allow the maximum utilization of pertinent information and should improve total plant performance.

Developmental Projects
Many developmental projects are being tested on operating cells to significantly improve production performance and metal purity at reduced operating costs.

- **Cell Magnetics Improvement**
  Five test cells are in service and five more are currently being installed. They have buswork modifications which will reduce magnetic field distortions in the cells and minimize metal pad turbulence. Benefits of this project are improved current and energy efficiency and reduced in-process inventory.
- **Anode Bus Widening**
  Twenty-one cells have been converted to wider anode bus, and the results have been very positive. Substantial gains are expected in improved current and energy efficiency and in increased amperage levels.
- **Mitsubishi Anode Technology**
  The Columbia Falls plant has purchased rights to test the Mitsubishi anode technology. Twenty cells are presently operating, and results are very encouraging. This technology offers improved energy and current efficiency, better carbon consumption and metal purity, as well as reduced manpower. Full commercialization would require additional license fees.
- **Alumina Point Feeders**
  Limited commercial use has been made of pre-bake type point feeders for charging alumina to the VSS cells. The improved control of alumina feed to the cell will result in reduction of the work force, more uniform and controlled operating conditions, and reduced use of vehicles.
- **Demonstration of Large Ingot Capability**
  The capability has been demonstrated to produce up to 30" thick sheet ingots in 190 inch lengths. A CO_2 injection system to reduce butt curl has been licensed from Alcoa and implemented effectively for casting large ingots. ONE Two casting pits have been deepened to accommodate casting of large ingots of up to 300 inches in length. Additional pit hardware and molds will be required to implement operational capability.

Litigation and Contingencies

Litigation

ARCO is involved in a number of suits filed against various public and private entities associated with electrical utility rate setting. The suits seek reductions in power rates. The costs of all but one of these suits are shared with other direct service industrial customers of BPA.

ARCO is a defendant in four suits in which former and/or present employees of the Columbia Falls plant seek compensation for loss of seniority or employment.

EPA, OSHA, and Other Deficiencies or Citations

There are no variances, non-compliances, or lawsuits in the areas of Environment, Safety, and Health. No citations exist, and none are known to be pending.

Long-Term Commitments

The Columbia Falls plant has purchased its basic raw material and energy under long-term contracts. The present status of these contracts is as follows:

Alumax, Inc. is obligated under an agreement dated July 20, 1971 to supply 200,000 metric tons of alumina per year through December 31, 1990. The contract may be extended through December 31, 1994, upon two years' notice. Under an agreement dated March 12, 1976, Alumax is obligated to supply 127,000 metric tons of alumina per year through June 30, 1988. This amount may be decreased by ARCO by 10 percent or increased by 10 percent so long as any increase merely offsets previous decreases. The contract may be extended through June 30, 1994, upon two years' notice. Both contracts may be assigned with the consent of Alumax.

A/S Kristian Jebsens Rederi is obligated under two contracts dated January 1, 1980 to transport the above quantities of alumina from Australia to the west coast of the United States (normally Everett, Washington). These contracts expire December 31, 1986. They may be assigned with the consent of Jebsens.

Bonneville Power Administration is obligated under a contract dated August 25, 1981, to supply the electric needs of the Columbia Falls plant until July 1, 2001. The contract may be terminated in whole or in part by ARCO upon one year's notice, provided that ARCO reimburse BPA for its otherwise unrecoverable costs. This contract may be assigned with the consent of BPA.

To replace the contract expiring on December 31, 1984, a contract is about to be entered into with Montana Power Company for the supply of natural gas to the Columbia Falls plant. The contract will be terminable upon two years' notice and will provide for assignability by ARCO upon the consent of BPA, which consent cannot be unreasonably withheld.

Environmental Status
In 1980, a major capital expenditure program of $32 million (the Sumitomo project) was completed at Columbia Falls to reduce fluoride emissions in order to meet revised standards. An additional capital expenditure of $5 million was made for the installation of a dry scrubbing system to maintain compliance with the standards.

Two waste landfills are currently on the facility property. Spent pot linings from the reduction process are the main waste disposed on-site. As a result of the Bevel Amendment, a mining waste exemption from the Resource Conservation and Recovery Act (RCRA), these spent pot linings are considered non-hazardous.

The facility has six groundwater monitoring wells and four process wells. Three of the monitoring wells are used to monitor groundwater down-gradient of the landfills. The process wells, which produce approximately 5 million gallons of water per day for cooling and drinking purposes, are also used as groundwater monitoring wells.

The facility is not required to have a National Pollution Elimination Discharge System (NPDES) discharge permit, since it is not a point source discharger. Plant effluent that consists of non-contact cooling water from the casting shop and also cooling water from the pitch plant is sent to evaporation ponds on the property.

Health and Safety Status
Columbia Falls is currently directing its health efforts toward compliance with the OSHA Hazard Communications Rule. No compliance difficulties are anticipated. Columbia Falls currently has no outstanding OSHA citations.

Medical Departments
The medical department is capable of doing all occupational health procedures, pre-employment and periodic physicals, and minor injury care.

Organization and Management

Organizational Structure

Exhibit C charts the organization at the Columbia Falls plant.

Manufacturing managers for operations, technology, engineering, and materials report to the plant manager.

Other managers for finance, special projects, public/government affairs, and employee relations also report to the plant manager.

Sales and Marketing responsibilities are handled by a manager and staff reporting to the vice president, Primary Operations, ARCO Aluminum, in Louisville, Kentucky.

Columbia Falls' management and professional staff has an average experience of over 15 years. Exhibit D profiles key management personnel.

Facility Description
ARCO Metals Company
Primary Aluminum Reduction Plant
P.O. Box 10
Columbia Falls, Montana 59912
406-892-3261

Location
- Two miles northeast of Columbia Falls, Montana

Property

• Plant Site	220	Acres
• Buffer Property	3712	Acres
• Total	3932	Acres

Buildings

• Manufacturing	1,750,000	Square Feet
• Maintenance	77,800	Square Feet
• Offices	38,400	Square Feet
• Laboratory	6,000	Square Feet
• Warehouse/Shipping	137,000	Square Feet
• Total	2,009,200	Square Feet

Major Equipment
- VSS-Sumitomo Potlines (5)
- Casting Furnaces (10)
- Casting Pits (5)
- Pig Casting Machine
- Carbon Plant
- Rod Mill Facility
- Receiving/Storage/Shipping Facilities
- Laboratory
- Offices
- Medical Department
- See Exhibit E for more detail

Product
- Various sizes and alloys of primary aluminum ingot
  - — Sheet Ingot
  - — Pig Ingot
  - — T Ingot
  - — Foundry Ingot

Capacity
- 360 million pounds per year

Port Everett, Washington
- 1 finger pier——16 ton capacity gantry crane
- 8,000 metric tons per 24 hours
- Long Term Lease——expires 7/1/89
- 55,000 short tons storage
- 1st call on Pier 1 and crane use. Total usage of the Dome.

Employees

	Hourly	Salaried Exempt	Salaried Non-Exempt	Total
1984	812	145	79	1,036
1985 Budget	787	158	79	1,024

All hourly employees are represented by the Aluminum Workers Trades Council (AFL-CIO) made up of the Aluminum, Brick and Glass Workers International and several craft unions. The labor environment is cooperative. No significant work stoppages have been caused by labor or contract disputes.

The labor agreement with the union expires on September 15, 1986.

Pension and Benefit Plans

Salaried Personnel

All exempt and non-exempt employees are provided with a standard ARCO Metals Pension and Benefit Plan, which includes:

1. Retirement Plan
2. Medical Insurance Plan
3. Dental Insurance Plan
4. Salary Continuation Plan
5. Long Term Disability Plan
6. Savings Fund Plan
7. Employee Stock Ownership Plan
8. Life Insurance Plan
   (Standard and Optional Provision)
9. Voluntary Accident Insurance
10. Business Travel Accident Insurance

Hourly Personnel

Employees are provided with the following negotiated benefits:

1. Life Insurance Plan
2. Accidental Death and Dismemberment Insurance
3. Weekly Accident and Sickness Insurance
4. Medical Insurance
5. Dental Insurance
6. Retirement Plan
7. Employee Stock Ownership Plan
8. Savings Fund Plan

Historical Operating Statistics

Columbia Falls Reduction Plant
Potline production statistics

Operating Rate	Historical 1979	1980	1981	1982	1983	1984 Estimate	198 Bud
Average Pots Operating	587	594	572	367	312	553	
Total Pots Available	600	600	600	600	600	600	
Percent of Capacity	98%	99%	95%	61%	52%	92%	
Potline Production							
Pot Operating Days (Thous.)	214.2	217.3	208.9	133.9	113.9	202.4	21
Average Amperage (Thous.)	100.0	99.4	102.0	102.1	100.0	102.2	1C
AMP Efficiency (Percent)	83.2	86.2	88.1	87.9	83.8	85.6	8
Potline Production (Millions of Pounds)	316.4	330.5	333.2	213.4	169.9	314.4	3E
Pot Rebuilds							
Pots Rebuilt	311	102	83	54	144	253	

Columbia Falls Reduction Plant
Raw material statistics

Material Consumption (lbs.) per Pound of potline production	Historical 1979	1980	1981	1982	1983	1984 Estimate	1985 Budget
Alumina	1.951	1.958	1.931	1.96	1.96	1.96	1.96
Aluminum Fluoride	.021	.021	.022	.025	.024	.020	.021
Cryolite	.049%	.024	.009	.013	.052	.040	.017
Petroleum Coke	.437	.407	.413	.406	.421	.411	.406
Anode Pitch	.187	.176	.177	.174	.180	.176	.174
Material Costs [1]							
Aluminum Fluoride							
— Dollars per Ton	568	735	847	908	793	790	889
— Total Dollars (Million Dollars)	1.9	2.6	3.1	2.4	1.6	2.5	3.2
Cryolite							
— Dollars per Ton	564	605	701	753	627	575	665
Total Dollars (Million Dollars)	4.4	2.4	1.1	1.0	2.8	3.6	1.9
Petroleum Coke							
— Dollars per Ton	149	169	152	172	133	140	149
— Total Dollars (Million Dollars)	10.3	11.4	10.5	7.5	4.8	9.0	10.4
Anode Pitch							
— Dollars per Ton	164	325	340	324	278	330	360
— Total Dollars (Million Dollars)	4.9	9.5	10.0	6.0	4.3	9.1	10.7

[1] $/Ton is acquisition cost including freight per short ton of material. Total $ were computed using material consumption rates shown above multiplied by hot metal production pounds times $/ton factors shown above (converted to $/lb.)

Columbia Falls Reduction Plant
Energy statistics

	Historical 1979	1980	1981	1982	1983	1984 Estimate	1985 Budget
Electrical Power Consumption per Pound of production							
Reduction Process — DCKWH	8.31	7.83	7.64	7.82	8.39	7.90	7.75
Total Power — ACKWH	8.97	8.42	8.19	8.52	8.98	8.34	8.26
Electric Power Rate (Mils/ACKWH)	3.43	5.75	8.03	19.07	23.7	24.1	23.7
Total Power Costs (Millions of Dollars)	9.6	16.0	22.1	34.7	36.5	64.4	67.0
Natural Gas Usage							
Consumption (MMCF)	444	403	331	266	272	245	322
Cost Per MCF ($)	2.48	3.59	4.52	4.82	5.01	4.8	4.9
Total Gas Costs (Millions of Dollars)	1.1	1.4	1.4	1.3	1.4	1.2	1.6

Columbia Falls Reduction Plant
Human resource statistics

	Historical 1979	1980	1981	1982	1983	1984 Estimate	1985 Budget
Operating Rate	98%	99%	95%	61%	52%	92%	99%
Average Employment							
Hourly Personnel	1124	1067	908	662	586	812	787
Salaried Personnel	293	306	322	289	206	224	237
Total Employment	1417	1373	1230	851	792	1036	1024
Average Hourly Compensation (Dollars per Hour)							
Hourly Wage	9.71	10.39	11.98	13.56	14.09	14.11	14.20
Hourly Benefit	3.39	3.65	4.61	6.44	7.54	6.64	7.01
Hourly Compensation	13.10	14.04	16.59	20.00	21.63	20.75	21.21
Manhours Per Short Ton of Finished Production							
Hourly Employees	12.7	11.8	9.6	10.6	11.4	9.1	8.4
Salaried Employees	3.5	3.4	3.6	5.6	4.2	2.4	2.5
Total Employees	16.2	15.2	13.2	16.2	15.6	11.5	10.9

Columbia Falls Reduction Plant
Production costs

	Historical 1979	1980	1981	1982	1983	1984 Estimate	1985 Budget
Finished Production (Millions of Pounds)	314.5	330.9	333.8	213.3	171.3	317.2	351.8
Production Costs (Cents per Pound)							
Conversion Costs (Excluding Alumina)	22	25	27	38	51	46	43
Period Costs (Excluding Depreciation)	4	5	6	9	8	8	6
Total	26	30	33	47	59	54	49

Forecast Production Costs

	1984 Latest Estimate	1985 Budget	1986	1987
Variable Costs—Excluding Alumina & Outbound Freight (¢/Lb)				
Total Other Material	10.6	10.8	10.5	11.4
Labor	5.4	5.6	5.2	5.4
Benefits	2.6	2.7	2.5	2.4
Total Labor & Benefits	**8.0**	**8.3**	**7.7**	**7.8**
All Supplies	2.4	2.2	2.2	2.1
Natural Gas & Fuel	.4	.5	.4	.5
Electric Power	20.3	19.0	20.3	20.2
Pot Rebuild	5.4	2.5	2.2	2.0
Total Variable Burden	**28.5**	**24.2**	**25.1**	**24.8**
Total Variable	**47.1**	**43.3**	**43.3**	**44.0**
Period Costs—($ Millions)				
Salary & Benefits	10.1	10.7	11.7	12.1
Property Taxes	2.7	2.9	2.8	2.9
Depreciation	7.6	8.0	8.6	8.9
Other Period	3.7	4.5	4.2	4.4
Developmental Projects	.4	1.3	3.9	3.9
TOTAL PERIOD	**24.5**	**27.4**	**31.2**	**32.2**

Exhibits

Exhibit A

U.S. Trademarks
All special trademarks applicable to the Columbia Falls facility will be assigned to the purchaser. This assignment will exclude any house marks or symbols of Atlantic Richfield Company. If a relevant trademark covers products which are produced at another ARCO facility, assignment or license of the right to such a mark will be negotiated.

Exhibit B

The following is a list of the current ARCO U.S. patents and patent applications that are applicable to the Columbia Falls reduction facility.

U.S. Patents

ARCO Case No.	Patent No.	Title
34-0029A	3,384,152	Starting Block Assembly for Continuous Casting Apparatus
34-0040A	3,384,498	Recovery of Aluminum Fluoride
34-0040A	3,941,874	Recovery of Aluminum Fluoride

U.S. Applications

ARCO Case No.	Number	Title
34-0060A	06,488,339	Operation of Soderberg Aluminum Production Cells and Apparatus Therefor

Atlantic Richfield Company will grant to a purchaser of the Columbia Falls facility a royalty-free, nonexclusive license to use all applicable technology, both patented and unpatented, being used in that facility. Further license rights may be the subject of negotiation.

Exhibit C

Organizational Chart

ARCO Aluminum
Columbia Falls

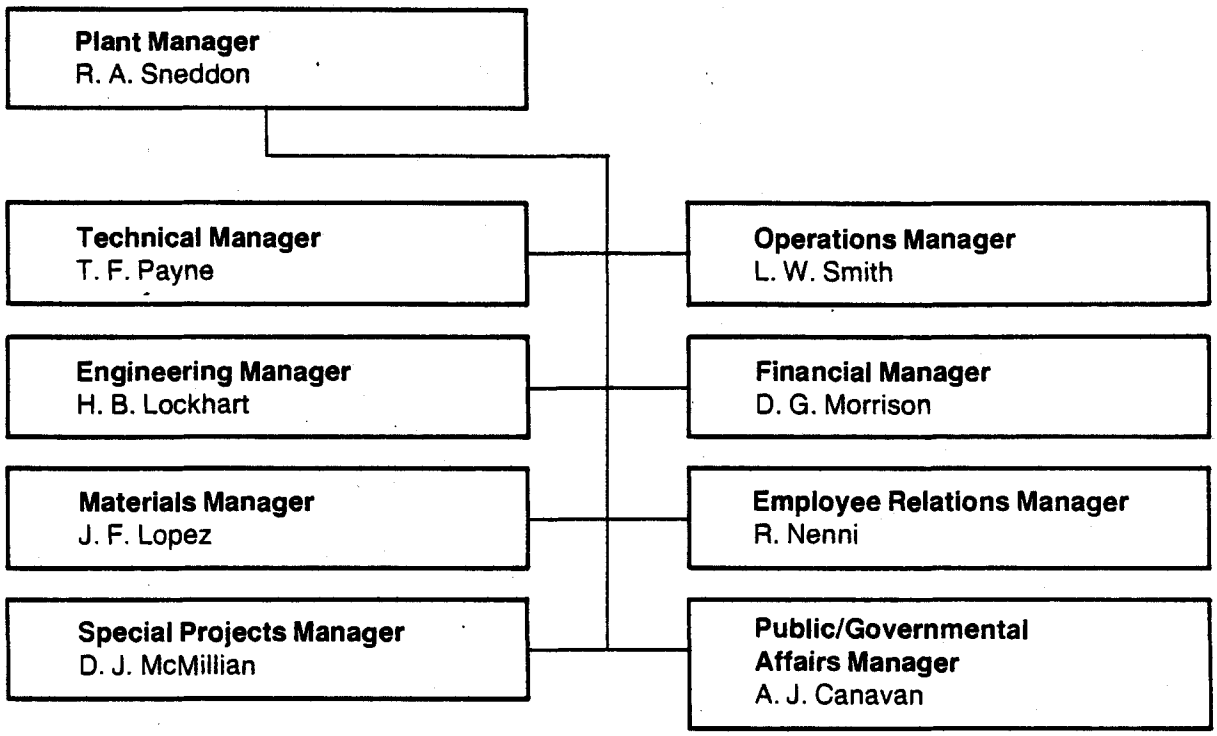

Exhibit D

Profile of Key Management

Name	Age	Position	Years with Company	Education and Previous Experie
Robert A. Sneddon	62	Plant Manager	34	B.S. Manager, Reductic Operations — Seb Smelter Plant Manager — Sebree Smelter
Lee W. Smith	51	Operations Manager	28	B.S. Technical Operatic Manager Production Manag
Thomas F. Payne	36	Technical Manager	14	B.S. Reduction Engine Superintendent Potline Engineer
Harold B. Lockhart	54	Engineering Manager	29	B.S. Casting Superinte Rod Mill Manager
James F. Lopez	39	Materials Manager	6	Work towards M.B B.S. Service Supervisc Reduction Accour
Donald G. Morrison	32	Financial Manager	7	M.B.A., B.S. Budget and Cost Analysis Manager Senior Planning Ar
Donald J. McMillan	47	Special Projects Manager	23	B.S. Planning and Eva Manager Sumitomo Project Manager
A. Jack Canavan	52	Public and Governmental Affairs Manager	18	Public Relations Representative Communicator— Public Relations
Rose Nenni	34	Employee Relations Manager	4	Employee Relatio Manager Labor Representa

Exhibit E

Equipment List as of September 1, 1984

Vertical Stud Soderberg Cells

- 102,500 amps
- 4.9 volts
- 7.7 **DC KWH/Pound**
- 60 cells per potroom
- 2 rows, end to end
- 10 rooms at 1100 feet
- 5 potlines
- Anaconda/Pechiney/Sumitomo technology
- Alcoa 398 Dry Scrubber

Melting and Casting Equipment

- 100,000 pound reverb furnaces (9)
- 75,000 pound reverb furnace (1)
- Pig casting machine (1)
- Casting pits (5)

Other Equipment

- 333 Vehicles
- 22 Pieces of environmental equipment and associated accessories
- 153 Pieces of carbon plant equipment and associated accessories
- 14 Pieces of mechanical shop equipment
- 105 Pieces of miscellaneous equipment
- 1 Complete rectifier station and switchyard operation

Other

- Rod Mill Facility
- Receiving/storage/shipping facilities
- Laboratory
- Offices

Note

- A more detailed list of equipment can be furnished if requested.

Exhibit F

ARCO Metals Company
Columbia Falls, MT.

PLANT SITE MAP